

NAPCON PRODUCTION

MAXIMIZATION FOR A TALL OIL DISTILLATION PLANT

Forchem Oy owns and operates a world scale tall oil distillation plant in the city of Rauma on the West Coast of Finland. The main products are tall Oil Rosin (TOR) and Tall Oil Fatty Acid (TOFA) and the plant is flexible in the sense that different types of Crude Tall Oil can be used as feedstock. The process is mainly based on a vacuum distillation technology originally developed and designed by Neste Jacobs, presently known under the trademark ArxPinus. Tall oil distillation is complicated by the thermal sensitivity and the overlapping boiling ranges of tall oil compounds.

Many biochemical processes offer opportunities for substantial improvement in terms of increased production. In spring 2015 Forchem ordered a NAPCON Performance Analysis project from Neste Jacobs, which aimed at quantifying the benefits of MPC (model predictive control). The NAPCON Performance Analysis lasted two months and was able to demonstrate a production increase of 9% achievable by simple means and manual operations. The Analysis also demonstrated a further increase of another 8%, achievable with the implementation of MPC. In the NAPCON Performance Analysis we reviewed the process, instrumentation, online analyzers and process control.

At the end of September 2015 Forchem Oy ordered an MPC implementation with NAPCON Controller from Neste Jacobs. The implementation project has proceeded as planned. In the middle of March 2016, about 5 ½ months from project award, we had TOFA production controlled and maximized by NAPCON Controller and in May 2016 we had the rest of the plant including TOR production under control and optimization. In June 2016 we run the guarantee tests for NAPCON and were able to verify the production increase figure of 8% as above.

CLIENT

Forchem Oy, Rauma, Finland

NAPCON PERFORMANCE ANALYSIS:

- 9% production increase by manual control (requiring continuous attention by operators)
- Above mentioned 9% is a “low hanging fruit” finding
- 2 months delivery time
- We received 100% client satisfaction from Forchem on the NAPCON Performance Analysis project as measured by Neste Jacobs’ quality management system procedure

NAPCON CONTROLLER MPC TURN-KEY IMPLEMENTATION:

- Additional 8% production increase by NAPCON Controller on-line 24/7 optimal control
- Sustainable production increase up to 17%
- 8 months complete implementation, 5 ½ months Early Start partial implementation for TOFA production

“During NAPCON Performance Analysis and the subsequent NAPCON implementation we became convinced of Neste Jacobs’ expertise to carry out the production optimization with NAPCON Controller. Neste Jacobs has proven their expertise to us in Tall Oil processing technology and engineering and are now combining that expertise with high-level automation technology. We are very excited about the great results and the attractive payback of the investment in NAPCON. NAPCON has significantly contributed to the 200 000 tons per year capacity that our plant has today.”

Risto Näsi
CEO, Forchem Oy